

WHAT IS CLAIMED:

1 ~~1. A coding and decoding apparatus wherein the coding~~
2 ~~side transmits coded data together with identifying~~
3 ~~information for identifying the means of decoding the coded~~
4 ~~data, and the decoding side is capable of storing a~~
5 ~~plurality of decoding schemes so as to perform decoding~~
6 ~~based on one of the previously stored schemes, in order that~~
7 ~~the coded data and the information of the tools which~~
8 ~~constitute the algorithm as the means of decoding the coded~~
9 ~~data can simultaneously be transmitted, the received tools~~
10 ~~can be reconstructed into the algorithm and the received~~
11 ~~coded data can be decoded based on the algorithm,~~
12 ~~said coding and decoding apparatus comprising:~~
13 ~~—— a tool storage means for storing tools;~~
14 ~~—— a tool correspondent information storing means for~~
15 ~~storing the information corresponding to the tools;~~
16 ~~—— a comparing means for comparing the tool correspondent~~
17 ~~information received with the information stored in said~~
18 ~~tool correspondent information storing means; and~~
19 ~~—— a selection controlling means for selecting the optimal~~
20 ~~tool from said tool storage means based on the result from~~
21 ~~said comparing means to perform the processing with the~~
22 ~~selected one,~~
23 ~~characterized in that the coded data, tool information,~~
24 ~~tool correspondent information are all transmitted~~
25 ~~simultaneously, and the coded data is decoded using the tool~~
26 ~~selected based on the received tool correspondent~~
27 ~~information.~~

1 ~~2. A coding and decoding apparatus according to Claim~~
2 ~~1, wherein the tool correspondent information comprises the~~
3 ~~processing capacity of each tool, and the processing~~

4 ~~capacity of the received tool is compared to a decoding~~
5 ~~capacity stored in said tool correspondent information~~
6 ~~storing means so that the tools whose capacities fall within~~
7 ~~the range of the decoding capacity are selected.~~

1 ~~—— 3. A coding and decoding apparatus according to Claim~~
2 ~~2, wherein the processing capacity of the tool is~~
3 ~~numerically represented and transmitted.~~

1 ~~—— 4. A coding and decoding apparatus according to Claim~~
2 ~~2, wherein said tool correspondent information storing means~~
3 ~~includes a decoding capacity storage section for setting up~~
4 ~~a decoding capacity of the decoding apparatus and storing it~~
5 ~~and a coding capacity storage section for storing each of~~
6 ~~coding capacities of the tools transmitted from the coding~~
7 ~~apparatus, and said comparing means comprises a capacity~~
8 ~~comparator which compares the coding capacity with the~~
9 ~~decoding capacity so as to judge whether the transmitted~~
10 ~~tool is processible.~~

1 ~~5. A coding and decoding apparatus according to Claim~~
2 ~~1, wherein the tool correspondent information comprises keys~~
3 ~~unique to different tools, and received keys are compared to~~
4 ~~the keys stored in said tool correspondent storing means so~~
5 ~~as to select the corresponding tools and operate the~~
6 ~~selected tools.~~

1 ~~—— 6. A coding and decoding apparatus according to Claim~~
2 ~~1, further comprising a response controlling means for~~
3 ~~requesting the coding apparatus on the opposite side to~~
4 ~~transmit the tool information only when tool information is~~
5 ~~required.~~

1 ~~7. A coding and decoding apparatus wherein the coding~~
2 ~~side transmits coded data together with identifying~~
3 ~~information for identifying the means of decoding the coded~~
4 ~~data, and the decoding side is capable of storing a~~
5 ~~plurality of decoding schemes so as to perform decoding~~
6 ~~based on one of the previously stored schemes,~~
7 ~~said apparatus being characterized in that n-ranked (n: a~~
8 ~~positive integer) coded data which is produced using an n-~~
9 ~~ranked coding tool and decoded using an n-ranked decoding~~
10 ~~tool has a hierarchical structure which includes (n+1)-~~
11 ~~ranked coded data which is produced using a (n+1)-ranked~~
12 ~~coding tool and decoded using a (n+1)-ranked decoding tool,~~
13 ~~the coding side having an n-ranked coding tool is composed~~
14 ~~of: a coding means which produces the n-ranked coded data~~
15 ~~using the n-ranked coding tool; and an identifier adding~~
16 ~~means which attaches N-ranked identifiers (N: a positive~~
17 ~~integer satisfying $N \geq n$) to N-ranked coded data which is~~
18 ~~included in the n-ranked coded data but is other than (N+1)-~~
19 ~~ranked coded data included in the N-ranked coded data, and~~
20 ~~the decoding side having an m-ranked (m is a positive~~
21 ~~integer satisfying $m \geq n$) decoding tool is composed of: a~~
22 ~~data reconstructing means which extracts the N-ranked coded~~
23 ~~data which is attached with the N-ranked identifiers where N~~
24 ~~$\geq m$, from the n-ranked coded data; and a decoding means~~
25 ~~which decodes the m-ranked decoded data using the m-th~~
26 ~~decoding tool.~~

1 ~~8. A coding and decoding apparatus according to Claim~~
2 ~~7, wherein said coding tool is an inter-frame predictive~~
3 ~~coding tool and said decoding tool is an inter-frame~~
4 ~~predictive decoding tool.~~

1 ~~—— 9. A coding and decoding apparatus wherein the coding~~
2 ~~side transmits coded data together with identifying~~
3 ~~information for identifying the means of decoding the coded~~
4 ~~data, and the decoding side is capable of storing a~~
5 ~~plurality of decoding schemes so as to perform decoding~~
6 ~~based on one of the previously stored schemes,~~
7 ~~said coding and decoding apparatus being characterized in~~
8 ~~that when the coded data and the coding information which~~
9 ~~includes a decoding scheme as the means of decoding the~~
10 ~~coded data and functional tools constituting the decoding~~
11 ~~scheme are simultaneously transmitted, the decoding side~~
12 ~~receives the coding information and reconstructs the~~
13 ~~decoding scheme based on the coding information received,~~
14 ~~and the received coded data is decoded based on the~~
15 ~~reconstructed decoding scheme, an identification code of a~~
16 ~~previously defined basic decoding scheme and the~~
17 ~~differential information from the basic decoding scheme are~~
18 ~~transmitted as the coding information from the coding side~~
19 ~~so that the decoding side will recognize the decoding scheme~~
20 ~~required therefor.~~

1 ~~—— 10. A coding and decoding apparatus according to Claim~~
2 ~~9, wherein the coding apparatus comprises: a database of~~
3 ~~coding schemes for storing plural kinds of coding schemes~~
4 ~~and functional tools which constitute the coding schemes; a~~
5 ~~coding scheme selector for selecting the coding scheme based~~
6 ~~on input data; a coding section for performing a coding~~
7 ~~process of the input data in conformity with the determined~~
8 ~~coding scheme; and a coding controller for controlling each~~
9 ~~section.~~

1 ~~—— 11. A coding and decoding apparatus according to Claim~~
2 ~~9, wherein the decoding apparatus comprises: a database of~~

3 ~~decoding schemes for storing plural kinds of decoding~~
4 ~~schemes and functional tools which constitute the decoding~~
5 ~~schemes; a decoding scheme constructing section for~~
6 ~~reconstructing the decoding scheme in accordance with the~~
7 ~~received coding information; a decoding section for~~
8 ~~performing a decoding process of the received data in~~
9 ~~conformity with the reconstructed decoding scheme; and a~~
10 ~~decoding controller for controlling each section.~~

1 ~~—— 12. A coding and decoding apparatus according to~~
2 ~~Claims 9 through 11, wherein the identification code of a~~
3 ~~basic decoding scheme and the information that one or some~~
4 ~~kinds of functional tools will be added to the basic~~
5 ~~decoding scheme, are transmitted as the coding information,~~
6 ~~so that the decoding scheme incorporated in the decoding~~
7 ~~apparatus can be expanded for use.~~

1 ~~—— 13. A coding and decoding apparatus according to~~
2 ~~Claims 9 through 11, wherein the identification code of a~~
3 ~~basic decoding scheme and the information that one or some~~
4 ~~kinds of functional tools will not be used, are transmitted~~
5 ~~as the coding information so that the decoding scheme~~
6 ~~incorporated in the decoding apparatus can be simplified for~~
7 ~~use.~~

1 ~~—— 14. A coding and decoding apparatus according to~~
2 ~~Claims 9 through 11, wherein the identification code of a~~
3 ~~basic decoding scheme and the information that one or some~~
4 ~~kinds of functional tools will be replaced with another or~~
5 ~~others, are transmitted as the coding information so that~~
6 ~~the decoding scheme incorporated in the decoding apparatus~~
7 ~~can be modified for use.~~

1 ~~15. A coding and decoding apparatus according to~~
2 ~~Claims 9 and 10, wherein when the coding information is~~
3 ~~transmitted, if there are a number of combinations of~~
4 ~~selectable coding information, the combination which~~
5 ~~minimizes the transmitted amount of information will be~~
6 ~~selected for transmission.~~

1 ~~16. A coding and decoding apparatus wherein the coding~~
2 ~~side transmits coded data together with identifying~~
3 ~~information for identifying the means of decoding the coded~~
4 ~~data, and the decoding side is capable of storing a~~
5 ~~plurality of decoding schemes so as to perform decoding~~
6 ~~based on one of the previously stored schemes,~~
7 ~~said coding and decoding apparatus being characterized in~~
8 ~~that: before transmitting the coded data to the decoding~~
9 ~~apparatus, the coding apparatus transmits the tools~~
10 ~~constituting an algorithm as the means of decoding the coded~~
11 ~~data, and the decoding apparatus reconstructs the algorithm~~
12 ~~using the tools so as to decode the received coded data~~
13 ~~based on the algorithm and stores the tools therein; when~~
14 ~~the decoding apparatus receives the coded data which has~~
15 ~~been coded by the same tools, the decoding apparatus decodes~~
16 ~~the coded data using the tools previously stored and the~~
17 ~~tools are defined in a hierarchical manner so that in place~~
18 ~~of a tool for a certain rank, the higher ranked tool can be~~
19 ~~used to secure the minimum quality of the operation; and the~~
20 ~~coding apparatus on the transmitting side simultaneously~~
21 ~~transmits the decoding tool information and the coded data~~
22 ~~if the decoding apparatus on the receiving side has not~~
23 ~~decoding tool requested by the transmitting side.~~

1 ~~17. A coding and decoding apparatus according to Claim~~
2 ~~16, wherein when the decoding apparatus on the receiving~~

3 ~~side has no decoding tool requested by the coding apparatus~~
4 ~~on the transmitting side, the transmitting side temporarily~~
5 ~~changes the coding scheme using the coding tool that is in~~
6 ~~conformity with the decoding tool present on the receiving~~
7 ~~side.~~

1 ~~—— 18. A coding and decoding apparatus according to Claim~~
2 ~~16, wherein when the decoding apparatus on the receiving~~
3 ~~side has no decoding tool requested by the coding apparatus~~
4 ~~on the transmitting side, the receiving side, whilst~~
5 ~~downloading the decoded tool transmitted from the~~
6 ~~transmitting side to construct the requested decoding tool,~~
7 ~~temporarily decodes the coded data using a substitutable~~
8 ~~higher ranked tool which is lowered in quality but still is~~
9 ~~able to perform decoding.~~

1 ~~—— 19. A coding and decoding apparatus according to Claim~~
2 ~~18, wherein after the decoding tool requested has become~~
3 ~~prepared, the receiving side starts the decode operation~~
4 ~~using the requested decoding tool.~~

5

6 20. A method for decoding coded image data, comprising:
7 receiving coded image data and tool information indicating
8 tools for constituting a decoding algorithm for decoding the
9 coded image data;

10 storing previously defined tools;

11 individually selecting at least one tool from the stored
12 previously defined tools based on the tool information;

13 constructing the decoding algorithm from the at least one
14 selected tool;

15 decoding the received coded image data by applying the
16 decoding algorithm; and
17 outputting decoded image data to a display device.